# The role of pulse time T off on porous silicon as template for Au nanoparticles by using the integrated electrochemical technique

Abstract :

Gold nanoparticles (AuNPs) having variety of sizes and shape were prepared using the template synthesis approach. Porous silicon (PSi) was fabricated using the pulsed electrochemical anodization method at different pause times, Toff as template for gold deposition. Choosing suitable pulse parameter produces PSi with higher porosity and smaller crystallite size. SEM showed that the variation of Toff affects the pores formation and the growth of gold nanoparticles while EDX suggested the presence of Au inside the pores structure. Photoluminescence spectra showed emission enhancement and a blue shifted relative to porous silicon before deposited with AuNPs. XRD shows a high degree crystallinity of the samples and the presence of cubic gold with crystalline sizes was around 42 nm.